



# DRP Demonstration Workshop

## Demo C - Locational Net Benefits Analysis- Field Demonstration

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June 28, 2016

# Content for Demonstration C

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# Demo C Objective and Expected Outcome

## Objective:

Implement a field demonstration projects that can be used to **validate** the ability of DERs to achieve net **benefits** for at least three DER avoided cost categories or services, **consistent** with the Locational Net Benefits Analysis (LNBA) methodology.

## Expected Outcome:

**Validate** and **calibrate** the LNBA methodology and provide **recommendations** on incorporating Distributed Energy Resources (DERs) into planning and operations.



Preferred Resources Pilot (PRP) Area (Irvine substation) (proposed)

# Demo C: Summary of Project Proposal

## Scope

- Validate the identified location within SCE's PRP to conduct Demonstration Project C consistent with the stated objective.
- Design, acquire and implement a portfolio of DERs at the identified location to validate the ability of DERs to achieve net benefits consistent with the LNBA methodology.
- Provide a set of recommendations to improve the distribution planning process to incorporate DERs as alternatives to traditional distribution upgrades.
- SCE estimated cost: \$9.3M

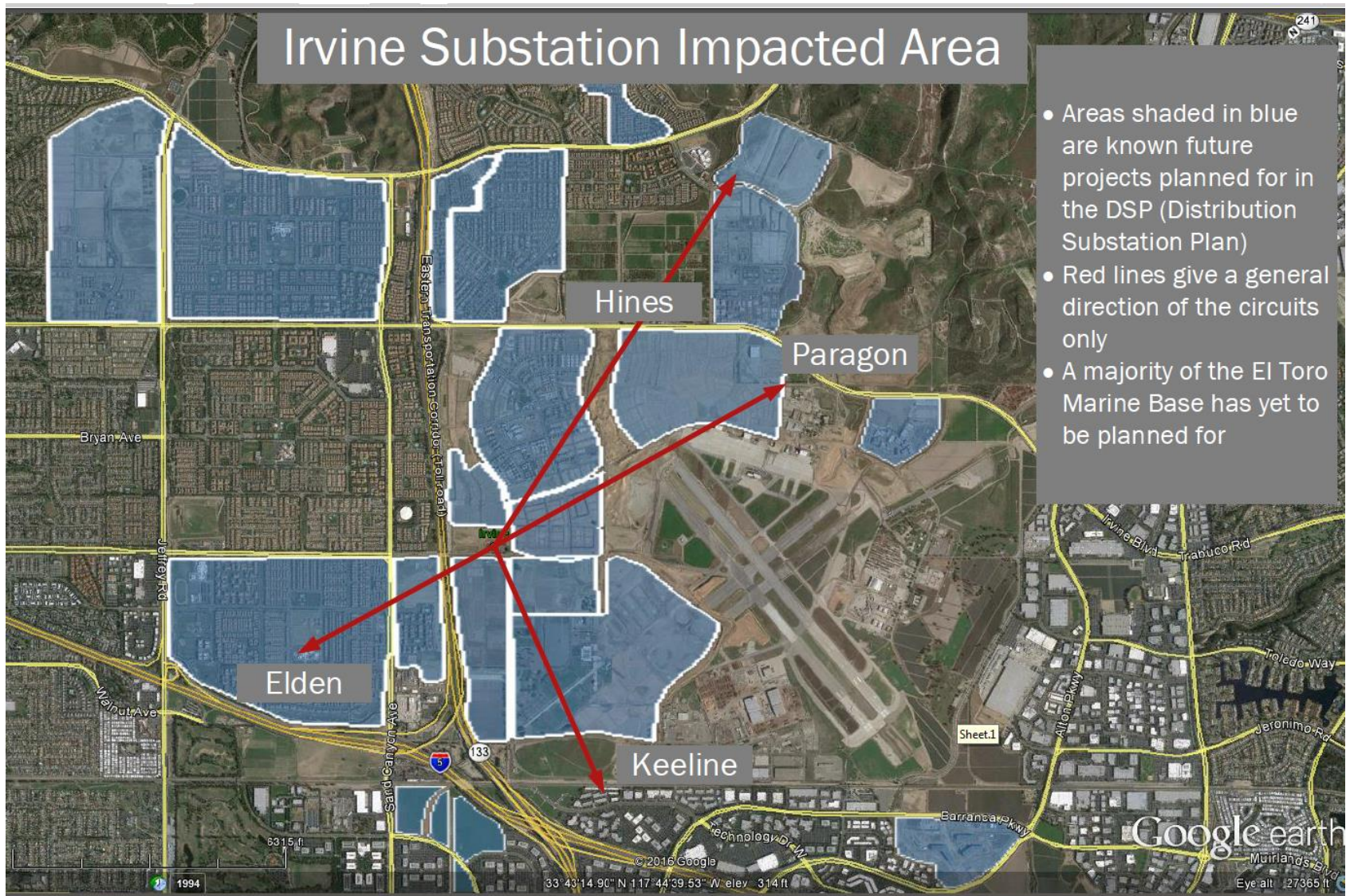
## Approach

- Use the LNBA results to validate the identified location
- Leverage the PRPs portfolio design and acquisition activities to deploy a portfolio of DERs.
- If needed, launch a competitive solicitation to meet the DER net short need.
- Test the ability of the portfolio of DERs to be integrated into both planning and operations.
- Validate DERs ability to achieve expected LNBA benefits.

Key Milestones	
Finalize Project C scope, Budget, and schedule	Q4 2016
Design DER portfolio options	Q4 2016
Launch DER RFO (if necessary)	TBD
Obtain CPUC approval for DERs contracts (if necessary)	TBD
Deploy DERs and install metrology and control system	Q2 2019
Issue final report	Q4 2019*

\*Date is contingent on ability to acquire and deploy DERs

# Proposed Location Overview



# Demo C Rationale

- High confidence of anticipated load growth, which is driven primarily by new residential development of El Toro Marine base.
- Identified capacity-related projects provide opportunity for DERs to potentially address traditional system upgrades.
- Location is part of the PRP area and benefits from ongoing acquisition activities likely to result in additional DER deployments to the Demo C region.
- Procured DERs for 2018 project will also alleviate 2023 project needs.

Location (Substation)	Circuits	Potential Deferment Opportunity	Expected Need Date	Preliminary MW Need
Irvine 66/12	Paragon Keeline Elden	Add 2 -12.0 kV circuits	Starting in 3Q 2018	0.8 – 1.2
	Hines	Add 1-12kV circuit	Starting in 3Q 2023	1 – 3.2

# Demo C Conceptual Diagram

Cyber Security & Interoperability

ADVANCED NETWORK & CONTROLS

Existing Circuit 1,2...

**DISTRIBUTION CIRCUIT**

New Line Extension

Irvine

Transformer

**SUBSTATION**

Commercial-Industrial

**EXST. CUSTOMERS**

Residential

PV

Energy Storage  
Renewable  
Generation  
Aggregated DR

**3<sup>rd</sup> PARTY  
OWNED  
RESOURCES**

Residential

Residential

**NEW CUSTOMERS**

New Circuit Deferred by DER Installation

**DEFERRED DISTRIBUTION CIRCUIT**

# Demo C Cost Overview

Demonstration C: SCE Implementation Cost Estimate	
Activity	Est. Amount (\$'000s)
Design and Engineering	\$ 850
Equipment and Services	\$ 6,500
DER Deployment Management	\$ 650
Measurement & Validation (Data Analysis)	\$ 850
Project Management	\$ 450
<b>Total</b>	<b>\$ 9,300</b>

- Design and engineering
  - Systems engineering
  - Specifications for all subsystems and major components
- Equipment and services
  - Advanced controls
  - Back office computing systems
  - Field area network devices
  - Telemetry at various strategic locations to capture data necessary to bench mark system performance

# Demo C Expected Outcomes

	Potential Demonstration Results
<b>Economic</b>	<ul style="list-style-type: none"> <li>• Potential to increase customer access to a variety of DERs in new bundles that suit individual needs</li> <li>• Potential for passing down savings to customers resulting from utility savings associated with capital deferment costs</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Understand how to meet customer reliability needs through a portfolio of DERs</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>• May encourage the introduction of new technologies</li> </ul>
<b>Market Opportunities</b>	<ul style="list-style-type: none"> <li>• Opportunity for 3<sup>rd</sup> parties to target offerings in specific areas at an appropriate costs to increase the value of DERs to the customer</li> </ul>
<b>Capability</b>	<ul style="list-style-type: none"> <li>• Validate the LNBM by using the methodology in a field demonstration setting</li> <li>• Validate whether DERs can reliably coordinate with the existing infrastructure to potentially defer distribution system upgrades and avoid capacity and energy expenditures</li> <li>• Obtain and aggregate input from Load Serving Entries, customer, third-party DER providers and DER technology vendors to identify portfolio options that serve locational needs and to identify data exchange barriers</li> </ul>
<b>Societal</b>	<ul style="list-style-type: none"> <li>• Understand whether additional opportunities to deploy DERs that can potentially reduce the emissions of criteria pollutants, which in turn might result in benefits to society</li> </ul>

# Questions